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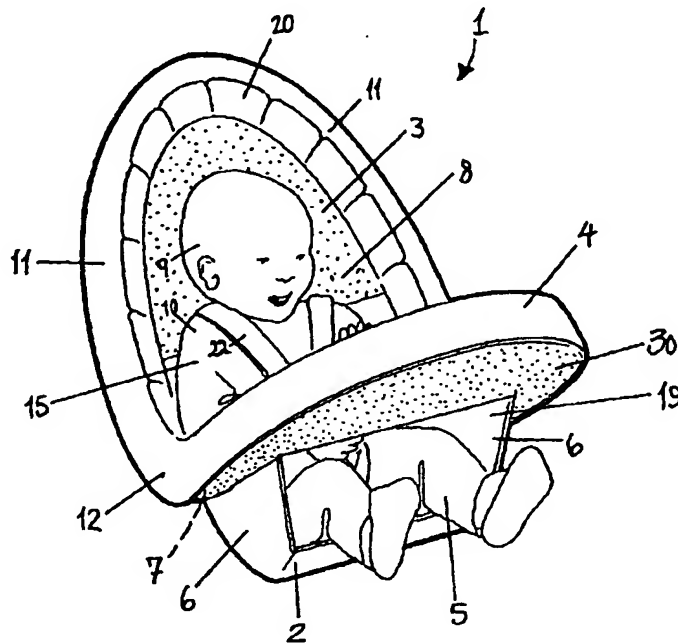
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| (71) Applicant and | | |
| (72) Inventor: TALLAKSEN, Hilde, Elisabeth [NO/NO]; Oddansheia 1, N-4513 MANDAL (NO). | | (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). |
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(54) Title: A FLOATABLE CHAIR FOR BABIES AND SMALL CHILDREN



WO 02/02398 A1

(57) Abstract: A floatable chair (1, 1') for babies and small children (15) comprises a seat (2) and a back rest (3) for supporting the child (15), and flotation bodies for providing buoyancy. The floatable chair (1, 1') comprises a self-righting portion (4) which comprises flotation bodies (30) which, when a child (15) is placed in a sitting position in the floatable chair (1, 1'), is located above the child's legs (5).

A floatable chair for babies and small children

The invention relates to a floatable chair for babies and small children, comprising a seat and a back rest for supporting the child, and flotation bodies for providing buoyancy.

5 When travelling on water, use is often made of life jackets, which are available in several sizes for adults and older children. If a life jacket is to be capable of being used as life-saving equipment, it is a standard requirement that it should be able to keep the user afloat in the water and turn the user face up above the water if he or she is lying face down in the water.

10 If a life jacket were to be sized for a baby, it would be extremely small, and in practice it would be difficult to design such a small life jacket in a manner which enables it to turn a baby and keep the baby's face above the water. In addition a life jacket would be uncomfortable and impractical for a baby. The same applies for slightly larger children, up to about 18 months.

15 US 5 993 276 describes a floatable chair which can be used by babies and small children. The floatable chair described herein, however, will not be capable of turning the child round if it is lying face down in the water.

20 US 4 725 253 and US 5 514 020 describes floatable chairs for babies and small children, which, if the child is lying face down in the water, can be turned by means of weights mounted under the seat of the floatable chairs. This makes the floatable chairs relatively heavy and unwieldy.

25 There are also known various types of seats and bags with carrying handles which can be employed to hold and transport babies and small children. These can be used in the water, but do not contain flotation bodies, and will therefore not be capable of being used as life-saving equipment if the child falls into the water.

30 The object of the present invention is to provide life-saving equipment for babies and small children, which life-saving equipment should be capable of turning a child into a face-up position if it is lying face down in the water. A further object is that the life-saving equipment should be practical and suitable for holding and transporting the child.

The object is achieved with a floatable chair of the type mentioned in the introduction which is characterized by the features indicated in the claims.

The invention will now be explained in greater detail with reference to the accompanying drawings, in which:

fig. 1 illustrates a first embodiment of a floatable chair according to the invention with a child, viewed at an angle from above,

5 fig. 2 illustrates the first embodiment of the floatable chair according to the invention viewed at an angle from above from another side,

fig. 3 illustrates the first embodiment of the floatable chair according to the invention viewed at an angle from the side,

10 fig. 4 illustrates a stack of floatable chairs according to the first embodiment of the invention, and

fig. 5 illustrates a second embodiment of the floatable chair according to the invention, viewed at an angle from above.

15 Fig. 1 illustrates a floatable chair 1 according to the invention with a child 15, viewed at an angle from above. The floatable chair 1 comprises a seat 2 and a back rest 3 for supporting the child 15, and flotation bodies for providing buoyancy.

20 Fig. 2 illustrates the floatable chair 1 without a child. A crotch strap 21 is illustrated for placing between the child's legs 5, and two shoulder straps 22 for placing over the child's shoulders 10, see fig. 1, for securing the child 15 in the floatable chair 1. When placed in the floatable chair 1, the child 15 is in a comfortable sitting/lying position, and the child is prevented from moving on its own. Padding 20 helps to ensure that the child is not exposed to uncomfortable shocks during sudden movements. The floatable chair 1 can be placed on a suitable base, for example a seat or a deck in a leisure boat or a passenger ship.

25 According to the invention the floatable chair 1 further comprises a self-righting portion 4 comprising flotation bodies 30 which, when the child 15 is placed in the sitting position in the floatable chair 1 illustrated in fig. 1, are located above the child's legs 5.

30 If the floatable chair 1 and the child 15 should fall into the water, the child will be secured in the floatable chair by the straps 21, 22. If the floatable chair falls in such a manner that the child lands face down in the water, the flotation bodies 30 in the self-righting portion 4 will obtain buoyancy, causing the

floatable chair 1 to be righted, with the result that it is turned in the water and the self-righting portion 4 is facing upwards, while the seat 2 with the child's bottom are facing downwards in the water. In order to achieve this, it is preferred that 20-50%, and most preferred 30-40% of the total buoyancy of the floatable chair 1 is provided by the self-righting portion's 4 flotation bodies 30.

In its general form, the invention is not dependent on a specific design of the self-righting portion 4 or a specific location of the flotation bodies 30 in the self-righting portion 4, since the essential feature of the inventive concept is that flotation bodies with a buoyancy which is sufficient to right the floatable chair from a position where the child is lying face down in the water to a position where the child is lying face up, should be arranged in such a manner in the floatable chair 1 that they are located above the child's legs 5 when the child is placed in a sitting position in the floatable chair 1. This can be achieved with a self-righting portion with flotation bodies which are cylindrical or plate-shaped or are of another shape which is of practical use with regard to the use of the floatable chair, and which can be designed integral with other portions of the floatable chair or be secured by attachment means such as stays, rivets, glue or attached via a fabric cover which is joined to the rest of the floatable chair.

Fig. 1 illustrates, however, a preferred embodiment of the floatable chair 1 where the self-righting portion 4 forms a bridge between side portions 6 of the floatable chair 1, and the child's legs 5 are placed in such a manner that they protrude through an opening 19 in the floatable chair 1 between the self-righting portion 4 and the seat 2. In the embodiment in fig. 1, the flotation body 30 in the self-righting portion 4 is designed as a continuous portion extending between the side portions 6. The seat 2, the back rest 3 and the self-righting portion 4 are designed as one part and are connected by the side portions 6.

In order to ensure that the child's upper body with the head 9 are facing upwards when the floatable chair 1 is lying in the water, thus enabling the child to breathe without ingesting water, it is preferred that the back rest 3 is provided with flotation bodies 8 which, when the child 15 is placed in the sitting position in the floatable chair 1 as illustrated in fig. 1, are located at the child's head 9 and shoulders 10. It is further preferred that at least 70%, more preferably at least 80% and most preferred at least 90% of the buoyancy is provided by flotation bodies which, when the child 15 is placed in the sitting

position in the floatable chair 1 as illustrated in fig. 1, are located above the child's hip portion 7.

It is further preferred, as illustrated in figs. 1 and 2, that the floatable chair 1 has a rounded trough shape where the seat 2 is arranged in the bottom of the trough, thus giving the child a natural sitting/lying position, with the seat 2 with the child's bottom facing downwards in the water, and the child's head 9 and the self-righting portion 4 facing upwards above the surface of the water.

Fig. 3 illustrates the floatable chair 1 from the side. Here it can be seen that the back rest 3 and the side portions 6 in edge areas 11 and 12 respectively are provided with connected flotation bodies 31 and 32 respectively which merge into the self-righting portion 4. A continuous flotation body is thereby formed along the entire floatable chair's 1 edge area, which is advantageous for obtaining a stable floating position for the floatable chair in the water. At the same time this continuous flotation body acts as a shock-absorbing portion which protects the child, for example if the floatable chair 1 with the child falls against a ship's deck.

Fig. 3 further illustrates a support leg 17 which, by means of hinges 18, is rotatable from a recessed position where it is located in a recess 29 in the back rest 3, and an extended position illustrated in fig. 3, where the support leg 17 forms a support for the floatable chair 1 when the underside of the seat 2 is placed on a base. Fig. 3 also illustrates that the floatable chair 1 is provided with a carrying strap 16 which extends between attachments 27 and 28 respectively in the back rest 3 and the self-righting portion 4.

A major area of application for the floatable chair according to the invention will be on ferries and passenger ships, for example by loaning out floatable chairs to all children under 18 months of age. When the floatable chairs are not in use, they will have to be stored on board the ship, and it will then be an advantage if the floatable chairs occupy as little space as possible. An advantageous type of storage is stacking, which is illustrated in fig. 4, where four floatable chairs 1 are stacked inside one another.

In order to be able to stack the floatable chairs 1, it is preferred that the back rest 3 is provided with inwardly sloping surfaces 13 and that the sides of the seat 2 have inwardly sloping surfaces 14 at the side portions 6, thus enabling the back rests 3 and the seats 2 of adjacent floatable chairs 1 in a stack to be placed inside one another as illustrated in fig. 4.

In order to achieve a compact stack, it is advantageous that the self-righting portion 4 and the back rest's 3 and the side portions' 6 edge areas 11, 12 have a substantially uniform thickness t , as illustrated in fig. 3, thus enabling several floatable chairs 1 to be placed in a stack with the self-righting portion 4 and the back rest's 3 and the side portions' 6 edge areas 11, 12 of adjacent floatable chairs 1 approximately fitting into one another, as illustrated in fig. 4, the thickness t being in the stack's height direction.

To facilitate the stacking of the floatable chairs 1, the carrying strap 16 is preferably removably secured in the attachments 27, 28.

Fig. 5 illustrates a second embodiment 1' of the floatable chair according to the invention. In this embodiment too the seat 2 and the back rest 3 are integral via a side portion 6. In this case, however, the self-righting portion 4 is designed as a hoop-like portion which is attached in pivot joints 23 which in turn are secured in the side portions 6, permitting a rotation of the self-righting portion about an axis 26. The floatable chair 1' is further provided with a carrying handle 25 which is also secured in the pivot joints 23, and consequently is also rotatable about the axis 26, and which simultaneously forms an attachment for a hood 24 which is also secured in the back rest 3. The pivot joint 23 further serves as an attachment for a rotatable support leg 17. In this embodiment of the floatable chair 1' the back rest's flotation bodies 8 are mounted outside the back rest 3.

When the floatable chair 1' is not in use, it can be folded up by the support leg 17 being moved towards the seat 2 in the direction P2, and the self-righting portion 4 and the carrying handle 25 being moved towards the back rest 3 in the direction P1.

The floatable chairs 1, 1' may preferably be manufactured by vacuum forming, injection moulding or rotational moulding in a suitable plastic material such as ABS, PVC or polypropylene.

The flotation bodies may be made of a foamed material such as foamed polyurethane, EPS or another material with air in closed cells. The flotation bodies may be cut out of a plate of suitable thickness or moulded into the finished shape.

In the embodiment of the floatable chair 1 illustrated in figs. 1-3, the seat 2, the back rest 3, the self-righting portion 4, the side portions 6 and the back

rest's and the side portions' edge areas 11, 12 are moulded in a uniform shell structure with recesses for the flotation bodies 8, 30, 31, 32. The flotation bodies may advantageously be manufactured by the shell structure's recesses for the flotation bodies being bounded by mould parts, with the result that the
5 recesses and the mould parts together form cavities, whereupon the cavities are filled with liquid foam material which sets after a period of time.

It is also possible to mould the seat 2, the back rest 3, the self-righting portion 4, the side portions 6 and the back rest's and the side portions' edge areas 11, 12 integral with the flotation bodies, for example in polyurethane, the material
10 thickness determining the amount of buoyancy the different parts of the floatable chair will have.

The support legs may be made of plastic, aluminium or another suitable material. A soft carrying strap can be made of a suitable synthetic material such as nylon, while a rigid carrying handle can be moulded in plastic.
15 Padding can be made of a fabric-covered flotation material, such as "Airex" or polystyrene, while the hood can be made of a water-resistant fabric, such as cotton or nylon.

PATENT CLAIMS

1. A floatable chair (1, 1') for babies and small children (15), comprising a seat (2) and a back rest (3) for supporting the child (15), and flotation bodies for providing buoyancy, where a self-righting portion (4) comprises flotation
5 bodies (30) which, when the child (15) is placed in a sitting position in the floatable chair (1, 1'), are located above the child's legs (5), characterized in that the self-righting portion (4) forms a bridge between side portions (6) of the floatable chair (1, 1'), and at least 70%, more preferably at least 80% and most preferred at least 90% of the buoyancy is provided by
10 flotation bodies (8, 30, 31, 32) which, when the child (15) is placed in a sitting position in the floatable chair (1, 1'), are located above the child's hip portion (7).
2. A floatable chair (1, 1') according to claim 1, characterized in that 20-50% and most preferred 30-40% of the floatable
15 chair's (1) buoyancy is provided by the self-righting portion's (4) flotation bodies (30).
3. A floatable chair (1, 1') according to claim 1 or 2, characterized in that the floatable chair (1, 1') has a rounded trough shape, where the seat (2) is provided in the bottom of the trough.
- 20 4. A floatable chair (1, 1') according to one of the preceding claims, characterized in that the back rest (3) is provided with flotation bodies (8) which, when the child (15) is placed in a sitting position in the floatable chair (1, 1') are located at the child's head (9) and shoulders (10).
5. A floatable chair (1) according to one of the preceding claims,
25 characterized in that the back rest (3) and the side portions (6) in edge areas (11, 12) are provided with connected flotation bodies (31, 32) which merge into the self-righting portion (4).
6. A floatable chair (1) according to claim 5, characterized in that the self-righting portion (4) and the back rest's (3) and the side portions' (6) edge areas (11, 12) have a substantially uniform thickness (t),
30 and that the back rest (3) and the seat (2) are inwardly sloping (13, 14), thus enabling several floatable chairs (1) to be stacked inside one another with the self-righting portion (4) and the back rest's (3) and the side portions' (6) edge

areas (11, 12) in adjacent floatable chairs (1) approximately fitting into one another.

7. A floatable chair (1, 1') according to one of the preceding claims, characterized in that the floatable chair (1, 1') is provided with a preferably
5 removable carrying strap (16) or carrying handle (25).
8. A floatable chair (1, 1') according to one of the preceding claims, characterized in that the floatable chair (1, 1') is provided with an extendible support leg (17) for use when placing the floatable chair (1, 1') on a base.

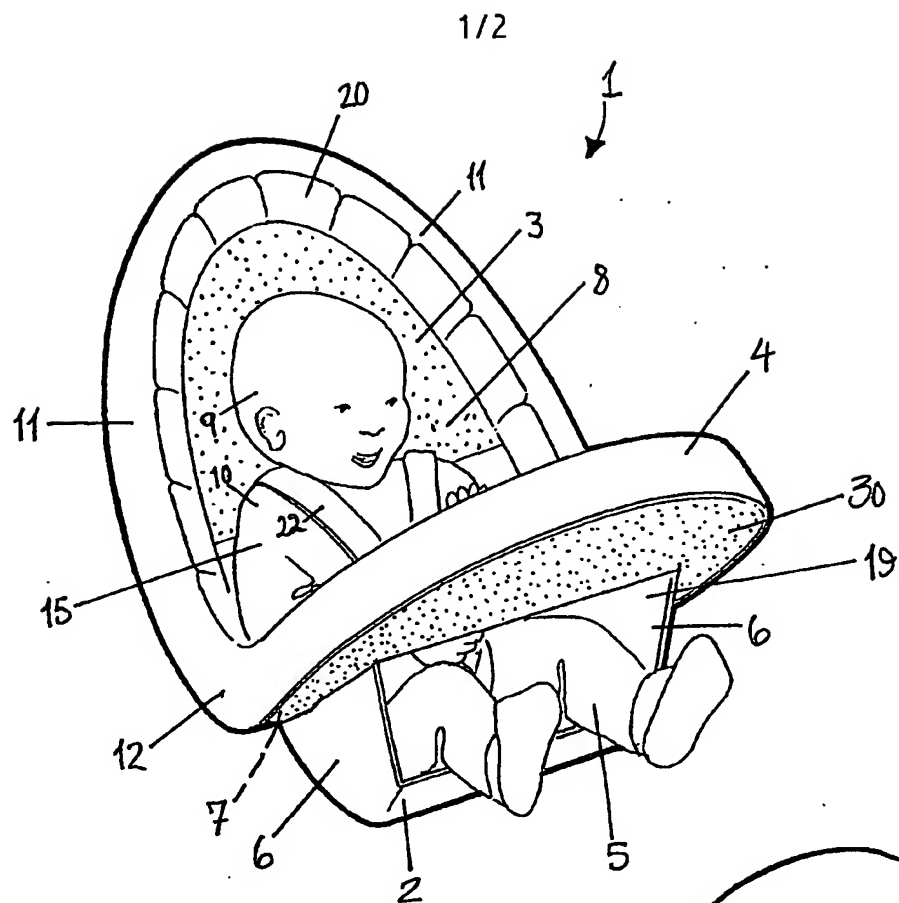


Fig. 1

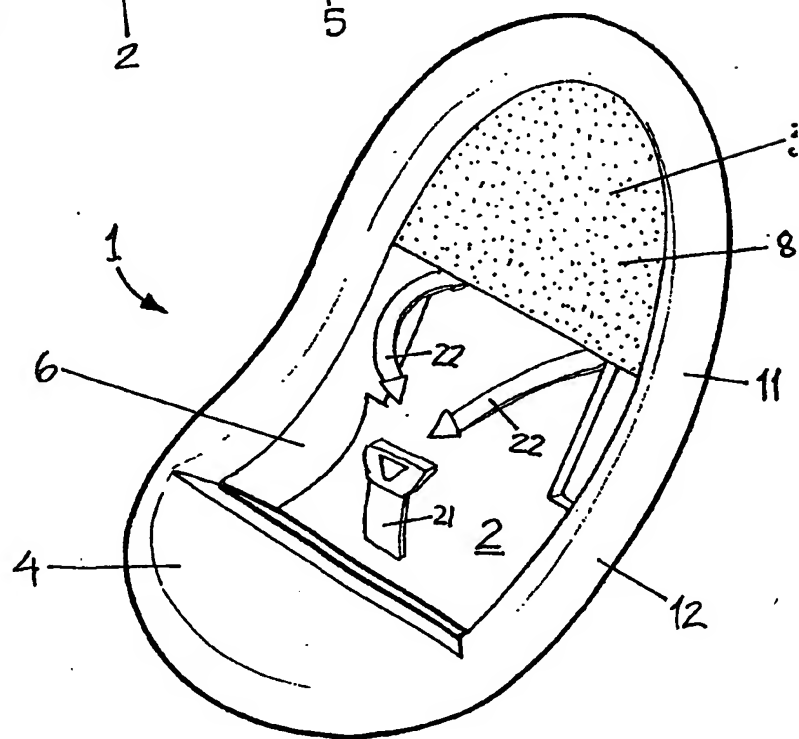


Fig. 2

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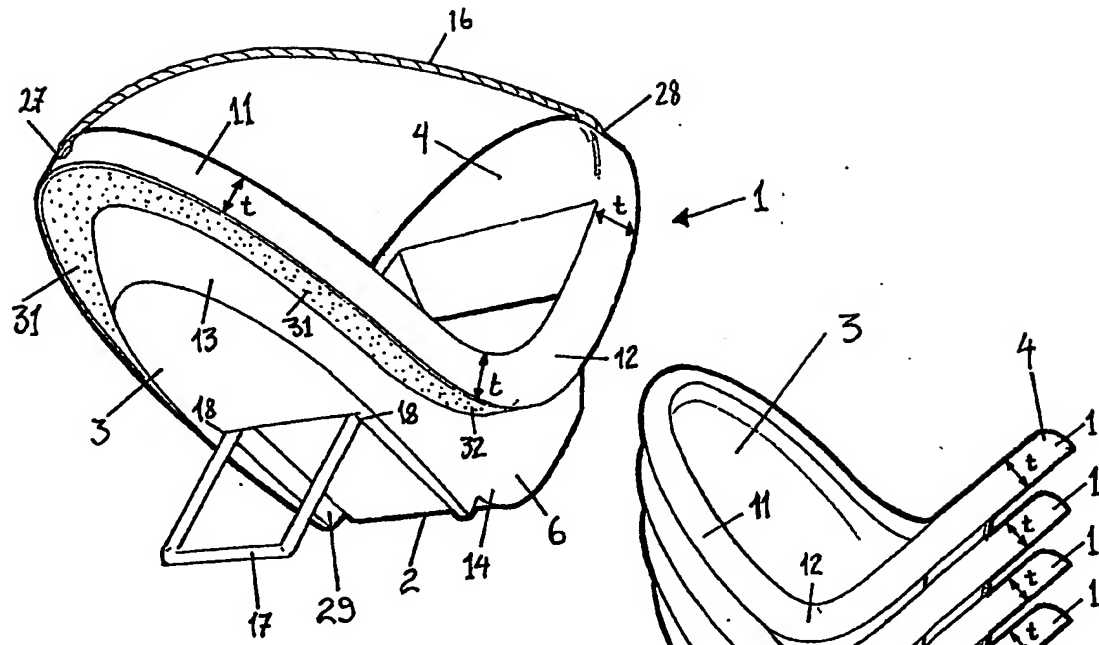


Fig. 3

Fig. 4

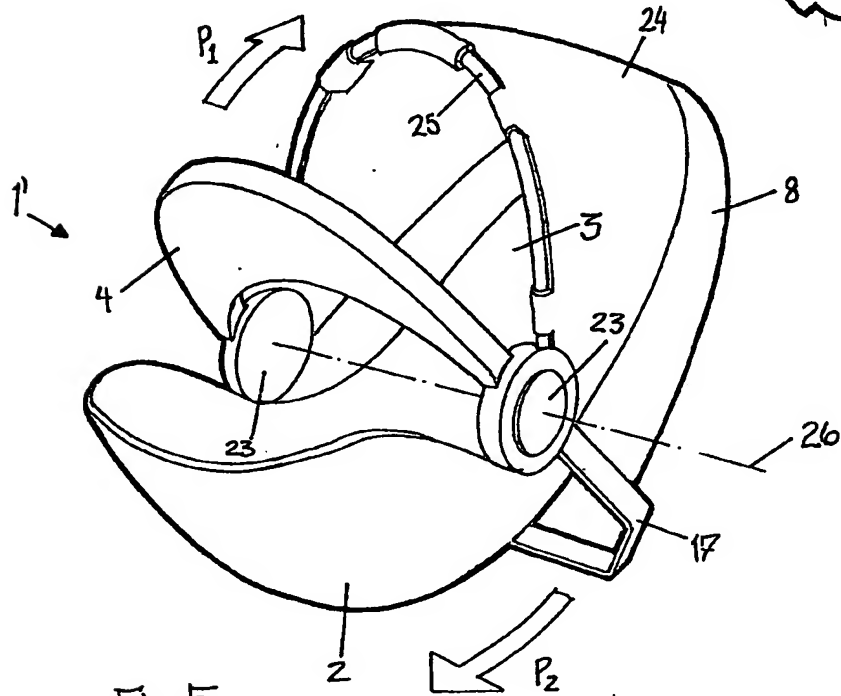


Fig. 5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/NO 01/00279

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: B63C 9/08, B63B 35/74

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: B63C, B63B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6059360 A (BEDARD), 9 May 2000 (09.05.00), figures 1-11, abstract	
A	US 6036563 A (WALKER), 14 March 2000 (14.03.00), figures 1-4, abstract	
A	US 5514020 A (GAINFORTH), 7 May 1996 (07.05.96), figures 1-4, abstract	
A	US 4725253 A (POLITTE), 16 February 1988 (16.02.88), figures 1-4, abstract	

☐ Further documents are listed in the continuation of Box C.
 ☒ See patent family annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
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"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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Name and mailing address of the ISA/

Swedish Patent Office
Box 5055, S-102 42 STOCKHOLM
Facsimile No. +46 8 666 02 86

Authorized officer

Dan Ionesco/EK
Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT

Information on patent family members

03/09/01

International application No.

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